

Forming Analytical Questions

Analytical question: A focused, data-driven question translated from a business question that is specific, measurable, and answerable using data and analytics methods

Business question: A high-level, often qualitative question posed by stakeholders that describes what they want to achieve or understand in business terms but typically lacks the specificity needed for direct data analysis

Clustering (cluster analysis): An unsupervised machine learning technique that groups similar observations into clusters so patterns or segments can be identified without predefined labels

Data storytelling: The method of communicating analytical findings through a narrative that combines data visuals, context, and insights to inform and persuade business stakeholders

Data visualization: The practice of presenting data in graphical forms such as charts or maps to make patterns, trends, and comparisons easier to understand

Descriptive analytics: Analytical solutions and techniques that summarize and visualize historical data to explain what happened, using aggregation, charts, and grouping methods

Diagnostic analytics: Techniques used to investigate and explain why an event occurred, often using regression, hypothesis testing, drill-downs, and root cause analysis

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Model deployment: The process of integrating a validated predictive or prescriptive model into production systems so it can be used routinely for decision-making or automation

Predictive analytics: Methods that analyze historical data to estimate future outcomes or probabilities, typically using time series forecasting and machine learning models

Prescriptive analytics: Advanced analytics that recommends optimal actions by combining predictions with optimization, decision logic, or recommendation systems to answer “what should we do?”

Recommendation engine: A prescriptive analytics system that analyzes user behavior, preferences, and contextual data to suggest personalized items or actions aimed at improving outcomes.

Regression analysis: A statistical technique that models the relationship between one dependent variable and one or more independent variables to estimate effects and make predictions

Root cause analysis: A systematic approach to identify the fundamental underlying reasons for an observed problem or event, often by breaking down factors and testing explanations

SMART (methodology): A guideline for forming analytical questions meaning Specific, Measurable, Actionable, Relevant, and Time-bound to ensure clarity and practical value for analysis

Strategic business goal: A long-term target or objective set by an organization that provides direction for teams and initiatives and against which success is measured

Time series forecasting: A predictive technique that analyzes ordered historical data points (over time) to model trends and seasonality and forecast future values

Translation process: The set of activities and conversations that convert a business question into one or more well-formed analytical questions and identify required data and analytical approaches

Value from Analytics workflow: A six-step process that starts with strategic business goals, moves through defining business questions and translating them into analytical questions, selects and develops analytical solutions, and delivers those solutions to create measurable business value